ENVIRONMENTAL ASSESSMENT for a Proposal to Convert 12 Ranching Wells into Wildlife Guzzlers Mojave National Preserve, California

Mojave National Preserve
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TABLE OF CONTENTS

SECTION I: PURPOSE NEED FOR FEDERAL ACTION

INTRODUCTION

California Department of Fish and Game (CDFG), in cooperation with the National Park Service (NPS), has proposed to retrofit 12 ranching water developments into wildlife guzzlers. The existing wells were originally installed and operated for cattle ranching. Most of the larger cattle grazing leases in Mojave National Preserve have been retired; in consequence, use of the associated wells has been discontinued and in many instances windmills, pump jacks, and other equipment have been removed by the ranchers.

PURPOSE AND NEED

The National Park Service is considering the issuance of a special use permit to facilitate a proposal from CDFG to reactivate historic man-made water sources for wildlife use. CDFG has proposed to redesign the water developments into wildlife guzzlers. CDFG has identified the need to augment the existing population to return wildlife populations to pre-well removal and/or shutoff conditions and numbers. Drought conditions over the past decade have increased the urgency to implement this proposal.

This environmental assessment (EA) addresses wildlife water needs in Mojave National Preserve. It examines natural and artificial sources of water. The CDFG proposal is assessed in comparison with other alternatives to consider a range of options and effects on wildlife and the surrounding environment. The EA considers the advisability of obtaining more information in order to adequately define the water needs of wildlife in Mojave National Preserve.

BACKGROUND

History of Cattle Ranching in the Mojave Desert, California

Cattle have been grazed in the Mojave Desert for over 100 years. Cattle ranching in the desert uses a system of water developments to move animals between various areas of forage to avoid over-utilization and maximize livestock production. The rancher turns off the water in one area and turns it on in another to move cattle within the allotment. When the wells are turned on through the use of windmills, pumps, generators, and so forth, water fills into a watering trough or other similar basin above ground. The watering troughs remain filled as long as the wells are turned on. Troughs are allowed to go dry when not in use.

When the California Desert Protection Act was passed in 1994, it established the rights of cattle ranchers to continue grazing at their 1994 levels. Since then, several ranchers have willingly sold their lands and grazing rights. Most of these lands have been donated to the US Government and the associated grazing allotments have been retired. The ranchers have the right to remove their personal property, including range improvements (Public Law 91-646, as amended). Range improvements would include fences, water tanks, pipelines and windmills (43 CFR 4120.3-6 *Removal and compensation for loss of range improvements*). Because the above-surface materials are being relocated elsewhere, the ranchers have shut off the wells that were providing the water for cattle. Ranchers have been removing their personal property since 2001.

Figure 1. Mojave National Preserve

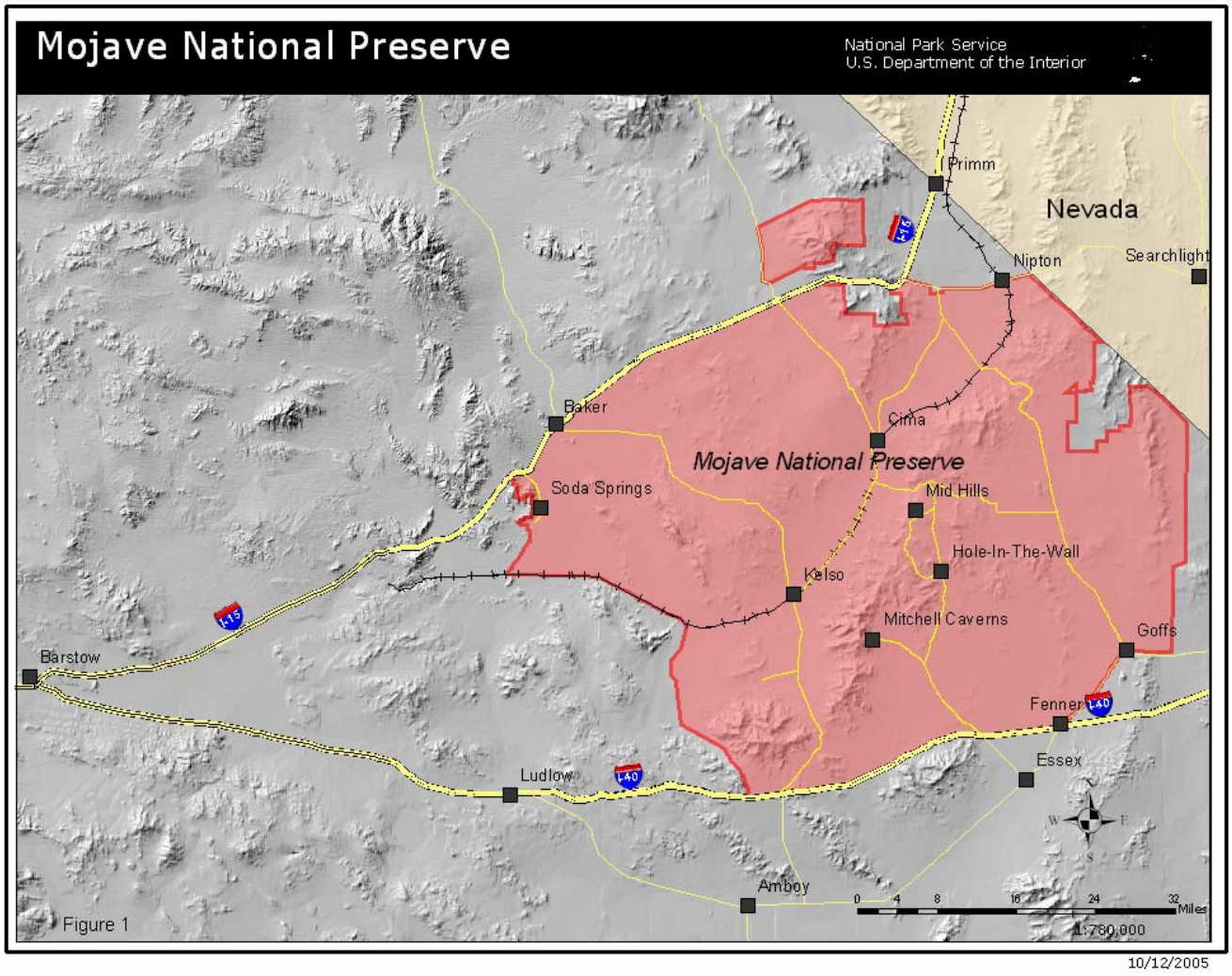
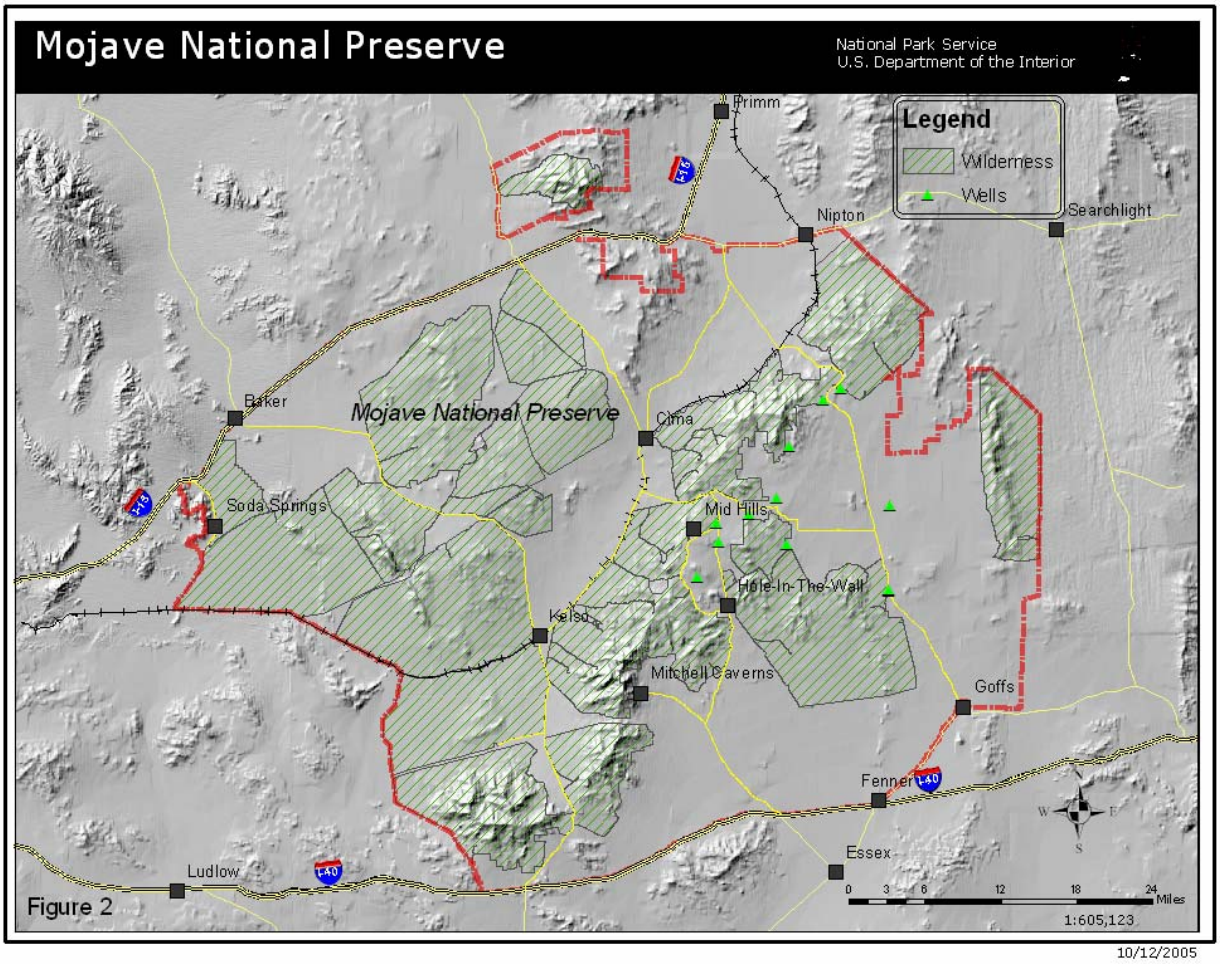


Figure 2: 12 Ranching Water Developments



Wildlife Management Policies in Mojave National Preserve

Wildlife management at Mojave National Preserve is summarized in the Preserve's General Management Plan (April 2002). Consistent with existing laws and policies, the GMP identifies Mojave's wildlife management goal to preserve and protect native wildlife and their natural habitat such that they support self-sustaining populations of native species.

Wildlife Guzzlers and other Artificial Water Developments in Mojave National Preserve

Six big game guzzlers were installed in the East Mojave National Scenic Area in the 1970s and 1980s. They are located on Old Dad Peak (3), Kelso Peak, Piute Peak, and Clark Mountain. There are also 133 small game guzzlers scattered throughout Mojave. An NPS survey team was able to relocate 117 of these and assess their condition in 2004.

These guzzlers were installed over the last 70 years by agencies and interest groups prior to the creation of Mojave National Preserve. Their purpose is to enhance or replace natural waters otherwise used for livestock, for use by wildlife. California Department of Fish and Game and volunteers have performed periodic maintenance on some of the guzzlers.

The GMP also addresses wildlife guzzlers in Mojave. It allows for the continued maintenance and repair of existing artificial wildlife watering facilities – 130-plus small game guzzlers and six big game guzzlers in 1994 – for native wildlife if found necessary to replace water lost due to previous human activities. In particular the GMP states:

> "Simultaneously, with the retention of these developed water sites, the National Park Service will actively begin to restore natural water sources to be self-sustaining. When a water source becomes self-sustaining, the artificial facility will be removed. The National Park Service has no jurisdiction over developed water sites on private land." (April 2002, p. 70)

Natural Water Sources in Mojave National Preserve

Numerous seeps and springs occur in Mojave National Preserve. Depending on rainfall these water sources can number from over 100 to almost 200. During droughts many of these springs are reliable, perennial water holes including: Piute Spring fed by recharge in the New York Mountains and storage in the alluvium of Lanfair valley, Soda Springs along the edge of Soda Dry Lake near the terminus of the Mojave River drainage, and Cornfield Spring fed by mountain front recharge in the Providence Mountains. Several regional water table aquifers extend partially into the park. The largest groundwater system in Mojave is the northerly extension of Fenner Valley. The total area of the Fenner Valley watershed is about 1100 square miles with about half inside the park boundary. Recharge to this system occurs primarily in the park at a rate estimated between 5000 and 70,000 acre-feet per year. East of this is the Lanfair watershed. Lanfair is the smallest groundwater system, 225 square miles, entirely within the park but is important for resources because of its approximately 150 gpm discharge to Piute Spring. About 90% of the Kelso groundwater system, approximately 650 square miles in area, is inside the park and supplies water to the park's main Visitor Center and to the Union Pacific Railroad. About half of the lower Mojave River system, with an area of about 950 square miles, lies within the park boundary while the remainder is up

gradient from the Preserve. This is the water supply for the town of Baker, the park's maintenance and employee housing, and the Desert Studies Center at Zzyzx. The north side of the park falls within the Ivanpah system, comprising an area of 435 square miles, about half of which lies inside the park boundaries. This system supplies water to a cluster of casinos at Primm on the Nevada state line and to the Mountain Pass mine in California. Finally, a corner of the Shadow Valley system, lies within the park and provides groundwater supplies to a gas station and a private residence.

Many small springs and seeps are fed by shallow, perched aquifers typically associated with the margins of mountainous areas. Since the volume of water in these perched zones is small, they are much more responsive to changes in precipitation -- flowing extensively during wet years and going dry during extended droughts. Nearly all ephemeral and perennial sources of water in the park have been modified extensively historically. Modifications include tunneling, hand dug wells, drilled wells, dams in drainage channels, excavated earthen catchments, and pipeline diversions.

Regardless of whether they have been altered, most water sources are available for wildlife use. The small springs and seeps are used by plants, wildlife, and for domestic or commercial purposes. The National Park Service is currently studying wildlife use of developed and undeveloped water sources in Mojave National Preserve. Up to 32 infrared-triggered cameras are being installed at various locations to record wildlife activity at these locations. Data will be collected with the cameras and through direct staff observation during the driest season. Data collection by these means began in 2005.

The California Department of Fish and Game believes the retirement of grazing allotments in Mojave National Preserve in the past five years has had a detrimental effect on wildlife populations. Because of these retirements and the shut-offs of associated ranching wells, CDFG has asserted, "it is critical to wildlife conservation within the Preserve to have many of these historical water sources reactivated by utilizing more appropriate technology in the form of wildlife guzzlers" (August 30, 2004 letter to Mary G. Martin, Superintendent).

RELATED LAWS, POLICIES, AND OTHER PLANNING DOCUMENTS

Servicewide and Park Specific Legislation and Planning Documents

The NPS Organic Act directs the NPS to manage units "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations" (16 U.S.C. § 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the action(s). An action constitutes an impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values." (NPS Management Policies 2001 1.4.3).

NPS Management Policies 2001 also require the analysis of potential effects of each alternative to determine if actions would impair park resources. To determine impairment, the NPS must evaluate "the particular resources and values

that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts." (NPS Management Policies 2001 1.4.4). The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values (NPS Management Policies 2001 1.4.3).

NPS units vary based on their enabling legislation and mission, their natural and cultural resources, and the recreational opportunities appropriate for each unit, or for areas within each unit. This environmental assessment analyzes the context, duration, and intensity of impacts related to the alternatives associated with conducting bighorn sheep management activities, as well as the potential for resource impairment, as required by Director's Order 12, *Conservation Planning, Environmental Impact Analysis and Decision Making.*

Mojave National Preserve was created in 1994 with the passage of the California Desert Protection Act. In this enabling legislation, the Secretary of the Interior

> "shall permit hunting, fishing, and trapping on lands and waters within the preserve designated by this Act in accordance with applicable Federal and State laws except that the Secretary may designated areas when, no hunting, fishing, or trapping will be permitted for reasons of public safety, administration, or compliance with provisions of applicable law. Except in emergencies, regulations closing areas to hunting, fishing, or trapping pursuant to this subsection shall be put into effect only after consultation with the appropriate State agency having responsibility for fish and wildlife. Nothing in the Act shall be construed as affecting the jurisdiction or responsibilities of the States with respect to fish and wildlife on Federal lands and waters covered by this title nor shall anything in the Act be construed as authorizing the Secretary concerned to require a Federal permit to hunt, fish, or trap on Federal lands and waters covered by this title." (PL 103-433 §506(b))

The 2002 *General Management Plan* (*GMP*) provides overall management direction for Mojave National Preserve. It also provides management direction for guzzlers.

The *Wilderness Act of 1964*, NEPA (1969), and NPS Management Policies all require an assessment of the effects on wilderness values of actions within all designated, proposed, or potential wilderness areas. *Director's Order 41: Wilderness Preservation and Management* (1999) provides guidance for the NPS wilderness management program and guides NPS efforts in meeting the letter and spirit of the 1964 Wilderness Act.

Mojave's enabling legislation designated approximately 695,200 acres of wilderness as components of the National Wilderness Preservation System. The legal descriptions and maps of the Mojave Wilderness are being finalized at present; they will eventually be filed with both houses of the US Congress.

ENVIRONMENTAL ASSESSMENT

The EA analyzes two action alternatives plus the No Action alternative and their impacts on the human and natural environment. It outlines project alternatives, describes existing conditions in the project area, and considers the effects of each project alternative on the environment. For alternatives that propose actions in wilderness, the EA documents the minimum requirements analysis and

explains the decision process for minimum tool. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508.9).

ISSUES AND IMPACT TOPICS

National Park Service management policies direct that all resources are protected in units of the National Park System and effects on those resources must be considered when selecting and implementing management actions. Issues are related to potential environmental effects of project alternatives and were identified by the project interdisciplinary team. Once issues were identified, they were used to help formulate the alternatives and mitigation measures. Impact topics based on substantive issues, environmental statutes, regulations, and executive orders (EOs) were selected for detailed analysis. A summary of the impact topics and the rationale for their inclusion or dismissal is given below.

ISSUES AND IMPACT TOPICS IDENTIFIED FOR FURTHER ANALYSIS

Soils: The ground surface may be disturbed during construction when tanks and drinkers are being installed. There is also a possibility of soil disturbance from trenching and burial of underground pipe or other equipment or by vehicular traffic associated with guzzler installation. Therefore, impacts to soils will be further analyzed.

Water Resources: Surface waters are rare in desert landscapes, yet are critical for maintaining wildlife and accommodating human use. Groundwater resources are critical to the maintenance of surface waters and provide much of the water used for human consumption. Wetlands and floodplains are also critical water-related resources; there exist specific legal requirements for their protection (Executive Orders 11990 and 11988). Ranching operations in Mojave both drew ground water and diverted surface water from springs and seeps to water cattle. Water wells have been drilled for livestock needs, domestic use, and mining operations. The National Park Service maintains wells for visitor and administrative uses throughout the Park. Any proposal to resume use of these developments will have impacts on ground and surface waters. Therefore, impacts to water resources will be further analyzed.

Wildlife: Individual animals, populations, and habitat have the potential to be affected by any alteration to water availability. In addition, among the comments received during the public scoping period was the suggestion that wildlife guzzlers could be used to facilitate the reintroduction of pronghorn antelope in the Mojave Desert. This issue requires further study and therefore, impacts to wildlife will be further analyzed.

Vegetation: Vegetation can be both directly and indirectly affected by alterations to available water. Plant life is directly dependent on available water; the scarcity of water in a desert environment magnifies this relationship. Moreover, changes to the wildlife populations will affect the composition and abundance of associated plant life. Therefore, impacts to vegetation are further analyzed.

Threatened, Endangered and Sensitive Species: The Endangered Species Act directs the National Park Service to consider the effects of management decisions on threatened and endangered species. There are four federally listed species that occur or might occur in the Preserve: the desert tortoise (*Gopherus agassizii*, known populations as well as designated critical habitat), the Mohave

tui chub (*Gila bicolor mohavensis*, known populations), the least Bell's vireo (*Vireo bellii pusillus*, undetermined presence), and the southwestern willow flycatcher (*Empidonax traillii extimus*, undetermined presence). Arizona bell's vireo (*Vireo bellii arizonae*) has been documented in the Preserve; it is a California state listed species. The Mohave tui chub is found only in two associated water sources at Soda Dry Lake and will not, therefore, be affected by alterations to available water elsewhere in Mojave. Desert tortoise, least Bell's vireo, and southwestern willow flycatcher are all more directly affected by the availability of surface water. In addition, desert tortoise populations can be affected by the presence of surface water and the potential for entrapment and/or drowning in water catchment systems. Therefore, impacts to threatened, endangered, and sensitive species are further analyzed.

Prehistoric, Historic, Cultural Landscape Resources: The National Historic Preservation Act directs parks to consider the effects of their management decisions on cultural resources. Mojave National Preserve has a rich ranching history in addition to ongoing cattle ranching operations. Any alterations to the historic cultural landscapes representing former ranching operations must be considered. Therefore, impacts to cultural resources are further analyzed.

Visitor Experience: Mojave National Preserve is popular with visitors for wildlife viewing and for hunting. In accordance with the California Desert Protection Act, hunting is authorized in Mojave. California Department of Fish and Game determines and manages hunting seasons, regulations, permits, and tags. Because wildlife populations are affected by water availability, any shifts in such water may result in impacts to both game and non-game species and, therefore, to hunting and wildlife viewing activities. Therefore, impacts to the visitor experience are further analyzed.

Development and Public Health & Safety: Mojave National Preserve has varied infrastructure including that found on public property in addition to numerous formerly private land holdings. The original twelve ranching water developments proposed for conversion were shut off when ranching operations ceased. CDFG desires to reopen and alter these water sources for wildlife use but the possibility of the water being used by humans must also be considered. Therefore, impacts to existing development are further analyzed.

Park Operations: The National Park Service is working with California Department of Fish and Game to address water availability for wildlife in Mojave National Preserve. Under each alternative including No Action, Mojave commits to funding, equipment, and staff time. The level of such commitment varies according to each alternative. Therefore, impacts to park operations will be further analyzed.

Wilderness: The Wilderness Act directs that parks consider the effects of their management decisions on designated wilderness. Nearly half of Mojave National Preserve, close to 700,000 acres, is designated wilderness. Although the twelve wells originally proposed for conversion to guzzlers are not in wilderness, other wildlife water facilities are. Impacts to wilderness under alternatives other than the proposed action need to be assessed. Therefore, wilderness and Minimum Requirements Analysis are discussed and the Minimum Tool defined where possible, based on available information.

Minimum requirements analysis is a documented process used to determine the appropriateness of all actions affecting wilderness (NPS 1999). It is a two step process that documents 1) a determination as to if a proposed management action is appropriate or necessary for the administration of the areas as wilderness, and does not pose a significant impact to the wilderness resources and character; and, 2) if the project is appropriate or necessary in wilderness, the

selection of the management method that causes the least amount o impact to the physical resources and wilderness character. This document provides the minimum requirements analysis for converting wells to guzzlers.

Directors Order/Reference Manual #41 directs that when determining the minimum requirements for a proposed action, the manager will strive to minimize the extent of adverse impact associated with accomplishing the necessary wilderness objective. The determination as to whether or not an action has an adverse impact of wilderness must consider both the physical resources within wilderness and wilderness characteristics and values. These characteristics and values include: the wilderness's primeval character and influence; the preservation of natural conditions (including the absence of man-made noises); cultural resource values, the assurance of outstanding opportunities for solitude; the assurance that the public will be provided with a primitive and unconfined type of recreational experience; and the assurance that wilderness will be preserved and used in an unimpaired (NPS 1999).

IMPACT TOPICS CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

Some impact topics were considered but dismissed based on the CDFG's proposal and their explanation of how the work is to be accomplished. For example, prime and unique agricultural lands were dismissed from further analysis because the lands in question have already been retired from grazing operations. These lands are now managed for their natural, historic and cultural values.

Geology, Paleontology and Topography: Apart from impacts associated with soil disturbance, the Preserve's geological, paleontological, and geomorphological features are not expected to be otherwise impacted from alterations to wildlife water availability. Therefore, the EA will not further analyze impacts to geology, paleontology, or topography.

Soundscapes: The conversion of ranching water developments to wildlife guzzlers may have minor, temporary impacts to the natural ambient sound during construction and replenishment activities. There would be no long-term impairment to the natural ambient sound. Noise impacts to visitors and to wilderness values will be addressed under these other topics in the Environmental Consequences section. Impacts to natural sound are not further analyzed in a separate Soundscapes section.

Air Quality: The infrequent use of generators has negligible, localized, short-term adverse effects on air quality. No measurable impacts are expected; therefore this topic will not be further evaluated.

Socioeconomic Resources: Water availability for wildlife is unlikely to have significant impacts on socioeconomic circumstances in Mojave National Preserve or surrounding communities. While the local economies are affected by levels of visitor use, the degree of such impacts is only indirectly related to the proposal's impacts on wildlife populations and associated effects on visitor use. Changes in hunting will affect visitation only during hunting season. Significant impacts to local economies from changes to wildlife populations in Mojave are unlikely. Therefore, socio-economic impacts are not further analyzed.

The following topics are not further analyzed in this document because of the low potential for impacts to these resources.

- Socioeconomic resources
- Designated ecologically significant or critical areas
- Wild or scenic rivers
- Designated coastal zones

Indian Trust Resources
Ethnographic Resources
Prime and unique agricultural lands
Sites on the US Department of the Interior’s National Registry of Natural Landmarks
Sole or principal drinking water aquifers

SECTION II: DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This section describes the alternatives considered, including the no action alternative. The alternatives described include mitigation measures and monitoring activities proposed to minimize or avoid environmental impacts. This section also includes a description of alternatives considered early in the process but later eliminated from further study; reasons for their dismissal are provided. The section concludes with a comparison of the alternatives considered.

ALTERNATIVE A - NO ACTION

Under this alternative, wildlife would continue to use water provided from numerous springs, seeps, and other such natural water sources, and from the six big game guzzlers and 133 small game guzzlers already constructed for wildlife enhancement in Mojave National Preserve. All ranching water developments would remain as they were left by the ranchers in 2000 when the grazing allotments were retired and use of these locations was discontinued. The cultural resources associated with cattle ranching in the Mojave Desert would be protected. Decisions will be made in accordance with the General Management Plan for Mojave National Preserve. The GMP specifies Plan Actions for wildlife guzzlers as follows:

> The National Park Service will examine the use of and need for all big game and small game guzzlers. Guzzlers will be retained for native wildlife if they are found to be necessary to replace water lost due to actions taken by previous human activities. These developed water sites will be retained to allow native populations of plants and animals to return to or remain at a previously undisturbed population level. Simultaneously, with the retention of these developed water sites, the National Park Service will actively begin to restore natural water sources to be self-sustaining. When a water source becomes self-sustaining, the artificial facility will be removed. The National Park service has no jurisdiction over developed water sites on private land. The park will modify existing water developments (mostly small game guzzlers) to prevent desert tortoise from gaining access and to ensure they are able to escape from them.
> (Mojave National Preserve GMP, p. 70, April 2002)

The National Park Service will continue to inventory and monitor Mojave’s springs and seeps and restore their natural conditions in retired grazing allotments. It will continue to permit CDFG to maintain and repair existing wildlife guzzlers in the Preserve. CDFG will also continue to regulate hunting within Mojave National Preserve as it has done since the Preserve’s establishment in 1994.

Current monitoring efforts will continue under No Action. These include an annual inspection of known spring locations for presence and availability of surface water, line transect point counts for mule deer in mule deer habitat and for game birds throughout the Preserve, and photographic monitoring for a qualitative assessment of water uses by wildlife.

ALTERNATIVE B – PROPOSED ACTION
Retrofit 12 Existing Ranching Water Developments as Wildlife Guzzlers over Three Years

Alternative B is a proposal from the California Department of Fish and Game (CDFG) to transform 12 ranching water developments into guzzlers for use by mule deer and other wildlife over a three-year period. The Proposed Action is based on harvest data provided by CDFG. CDFG has offered funding and volunteers to carry out the work, including constructing the retrofits, monitoring the water levels, and, with generators, pumping water into the tanks periodically. CDFG would work with the NPS to obtain special use permits, provide monitoring data, and resolve issues such as access to sites and the need to avoid or mitigate impacts to desert tortoise (*Gopherus agassizii*), a Federally listed threatened species.

The retrofits proposed by CDFG would not result in a traditional self-replenishing guzzler design. Rather, these facilities would be well-fed drinkers for wildlife. Instead of a water catchment system above ground, the drinkers would be filled by well water pumped with generators into a holding tank. Generators will be carried to each site every time the drinkers need to be replenished. They will not be left onsite. The likely design would expose no more than two gallons of water at a time in a shallow basin approximately one to two feet above the ground surface. These drinkers would require regular maintenance to monitor the water levels and refill the drinkers by pumping well water into above-ground tanks. The size of these drinkers is unknown at present and will need to be provided by CDFG. (Personal communication, Larry Whalon and Bruce Kinney, 10/21/05) Once the design, size, installation, and capacity of these drinker systems is known, a more informed analysis may be made regarding the frequency of tank replenishment (accounting for evaporation as well as use), human traffic congestion, vegetation compaction, and soil compaction and/or erosion.

The twelve wells in question are at least 12 years old. If they have metal casings, their average life expectancy is 20 years. Therefore, they are already past the majority of their useful life. These wells will need to be inspected and certified by a California state certified well contractor. Based on the inspections, repairs or replacements may be required before these wells are converted to wildlife drinkers.

To avoid a situation similar to the 1995 bighorn sheep die-off, water quality will need to be routinely monitored. CDFG will also be required to submit reports on the condition and use of the twelve converted guzzlers. For the big game guzzlers in Mojave National Preserve, CDFG records guzzler condition, water levels, pellet transect data, maintenance performed, wildlife use, and volunteer mileage and hours of labor. NPS and CDFG will need to develop a separate data form for the proposed converted guzzlers. This information will be used to determine appropriate levels of maintenance to minimize impacts by volunteers and CDFG personnel.

ALTERNATIVE C – SCIENCE-BASED MANAGEMENT
Monitor the Natural Springs and Wildlife Populations of Mojave National Preserve to Determine Existence and Extent of Need for Artificial Water

Alternative C is the same as Alternative A but with an increase in knowledge as long-term scientific studies are completed. It proposes to complete the scientific studies needed before approving any/all wildlife management decisions, as called for in the Purpose and Need statement. This alternative is based on guidance issued by the US Department of Agriculture's Natural Resources Conservation Service (NRCS). The NRCS has developed conservation practice standards for wildlife watering facilities. Criteria for consideration include water quantity, water quality, site conditions, and operation and maintenance planning. To adequately assess these conditions, the National Park Service would monitor the condition of natural water sources and the health of wildlife populations in Mojave National Preserve. Part of this alternative may necessitate studies in designated wilderness. A major proportion of high quality wildlife habitat is in wilderness. Scientific research under Alternative C will contribute to management decisions that promote a balanced ecosystem and healthy wildlife populations both in and out of wilderness. Impacts to wilderness would be minimized and be counterbalanced by the increase in available information. Over the long term, management decisions will be based on better information and will, therefore, provide improved protections to Mojave National Preserve's wilderness.

Alternative B, the Proposed Action, is based on harvest data collected and provided by CDFG. Alternative C proposes to expand on this information. It would also expand on current or previous research such as the National Park Service's study of wildlife monitoring at developed and undeveloped water sources with infrared-triggered cameras (see Background). All research studies will be developed and implemented through the National Park Service's Scientific Research and Collecting Permit System. Under this alternative, the National Park Service will aggressively pursue funding and collaborative or cooperative opportunities to implement these scientific studies. Based on the information gained from such studies, wells could possibly be converted to wildlife drinkers, or artificial water developments could be repaired, retrofitted, or eliminated altogether.

ELEMENTS COMMON TO ALL ALTERNATIVES

Alternatives A, B, and C present three separate scenarios for Mojave National Preserve but have some elements in common. Under any of the three alternatives, the existing 133 small game guzzlers and six big game guzzlers will continue to exist in varying conditions and levels of function. The retired grazing allotments will remain retired; permits for active allotments will continue to be issued for livestock grazing. Undeveloped sources of water in the Preserve (i.e., springs and seeps) will continue to exist and will be restored as funding and time permits. The Rock Springs Land & Cattle Company Historic District nomination will continue to go forward.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

Several alternatives were considered but eliminated from further evaluation. Most of these ideas were presented during the public scoping period.

1. Convert All Ranching Water Developments in Mojave National Preserve into Wildlife Guzzlers. A proposal to convert the 12 Proposed Wells and all ranching water developments that were removed within the past five years to wildlife guzzlers does not conform to the GMP. At some estimates, there are over 125 separate developments initially installed by livestock

ranchers. Approximately 30-40 artificial water sources (wells) were shut off by ranchers when the Kessler Springs, Lanfair, and Valley View grazing allotments were retired and an equal number of modified springs were also abandoned at that time. The GMP allows for existing water developments to be retained where previous human activities resulted in a loss of natural waters for wildlife. Once native populations of plants and animals return to or remain at previously undisturbed population levels, and simultaneously with NPS efforts to actively restore natural water sources to self-sustaining conditions, artificial facilities may be considered for removal. The GMP does not allow for the development of new wildlife watering facilities. The ranching water developments in question were constructed and operated specifically for livestock grazing. They were not designed or used to support wildlife and, in their existing condition, would not serve such a purpose.

2. Remove all artificial water developments in Mojave National Preserve. According to the GMP, some ranching developments – fences, water tanks, pipelines and windmills – are the responsibility of the NPS, San Bernardino County, or Caltrans and are maintained by these entities. Most of these facilities are maintained by the rancher and are the rancher's personal property. If and when a grazing permit is retired through private acquisition and donation to the NPA, the rancher is responsible for removing all developments that are not otherwise retained as important features of the ranching history of the area. Therefore, any proposals to remove ranching water developments from Mojave National Preserve can only address those developments not considered the personal property of the rancher(s) or contributing elements of the ranching history of Mojave National Preserve. It would violate the GMP to remove all artificial water developments regardless to these two provisions.

3. Repair and maintain existing guzzlers. CDFG has assumed the responsibility for repairing and maintaining existing guzzlers in Mojave National Preserve. Mojave National Preserve issues a special use permit annually to CDFG to perform basic maintenance and repairs and, on a case-by-case basis, other permits for major construction and tank replenishment of the six big game guzzlers (BGGs). Mojave has also issued a special use permit for basic maintenance and repairs of small game guzzlers (SGGs) to CDFG. This permit covers work to all SGGs outside of wilderness and desert tortoise critical habitat. A permit for basic maintenance of SGGs within wilderness and/or critical habitat is under separate review. This alternative was eliminated because the proposed activity is already being reviewed and permitted per NPS regulations.

4. Retrofit ranching water developments based on inverse proximity to natural sources of water. As with the first alternative considered but eliminated, this proposal does not conform to the GMP and was, therefore, excluded from further consideration.

5. Retrofit ranching water developments/construct wildlife guzzlers to reintroduce Sonoran pronghorn antelope and/or other extirpated wildlife species to the Mojave Desert. More information about Sonoran pronghorn antelope and other extirpated wildlife species, as well as the use of guzzlers to reintroduce said extirpated species, needs to be gathered and studied before this proposal can be implemented. The proposal goes beyond the scope of this environmental assessment and was, therefore, eliminated from further consideration.

6. Build wildlife guzzlers in the Hackberry Complex burn area to replace burned spring developments. As with the first alternative considered but

eliminated, this proposal does not conform to the GMP and was, therefore, excluded from further consideration.

7. Reduce hunting in Mojave National Preserve. In establishing Mojave National Preserve, the California Desert Protection Act of 1994 permitted hunting, fishing and trapping on lands and water within Mojave National Preserve in accordance with applicable federal and state laws. Hunting with the boundaries of the Preserve is administered by CDFG and NPS regulations. The GMP establishes special hunting regulations in accordance with CDFG regulations. Both CDFG regulations and the GMP would have to be revised to accommodate a reduction in hunting within the Preserve. Such an action is beyond the scope of this environmental assessment.

8. Remove introduced game species from Mojave National Preserve (i.e., increase bag limits on targeted species). The GMP identifies Rocky Mountain mule deer (*Odocoileus hemionus hemionus*) and chukar (*Alectoris graeca*), as well as burros (*Equus asinus*), as the more prominent introduced species in the Preserve. No actions to remove mule deer are warranted until the genetics of the deer population are studied. The GMP does state, "the NPS will encourage reduction in this population of exotic birds [chukar] by seeking a higher bag limit, as compared to the native quail population. No new releases of these, or other exotic species, will be authorized." This alternative is beyond the scope of this document regarding mule deer, and has already been analyzed and complies with NEPA for chukar.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The alternative that best meets the criteria of Environmentally Preferred is the one that will promote NEPA, as expressed in Section 101 of that Act. This alternative will satisfy the following requirements:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and,
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

IMPAIRMENT

The mission of the National Park Service as defined in the Organic Act of 1916 (16 USC 1) and reaffirmed by the General Authorities Act, as amended (16 USC 1a-1), specifically requires that the NPS leave park resources and values unimpaired. This prohibition against impairment must, therefore, be addressed in any discussion regarding potential impacts to park resources. All alternatives are assessed for potential to significantly damage or impair the resources and values of Mojave National Preserve.

While Congress has given the Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the Park Service must leave park resources and values unimpaired, unless a particular law directly or specifically provides otherwise. This prohibition against impairment ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the Park’s general management plan or other relevant NPS planning documents.

SECTION III: AFFECTED ENVIRONMENT

INTRODUCTION

This section provides a description of the existing environment in the project area and the resources that could be affected by implementing the proposed alternatives. Complete and detailed descriptions of the environment and existing use at Mojave National Preserve can be found in the *Mojave National Preserve General Management Plan* (NPS 2002) and on the Park website at www.nps.gov/moja.

Not all resources within the Preserve would be affected by the conversion of ranching water developments to wildlife water facilities. As per Director's Order/Reference Manual #12: Environmental Compliance, this impact analysis is focused on those resources that have the potential for direct or indirect impact from the three alternatives.

LOCATION AND GENERAL DESCRIPTION OF MOJAVE NATIONAL PRESERVE

Mojave National Preserve is a 1.6 million-acre unit of the National Park Service that represents a combination of Great Basin, Sonoran, and Mojave desert ecosystems. Nowhere else in the United States can such a wide variety of desert plant life be found in such combinations and in such close proximity. Mojave is located in southern California, bounded by Interstate Highways 15 and 40 approximately halfway between Las Vegas and Joshua Tree National Park. Its eastern boundary primarily follows the Nevada-California state line.

The project area is characteristic of the Mojave Desert, with low precipitation (averaging 8 to 23 centimeters, or 3 to 9 inches, per year), low humidity, and wide extremes in daily temperatures. Winters are relatively short and mild, and summers are long and hot. The prevailing wind direction is from the south during the summer and from the north during the winter.

PHYSICAL RESOURCES

Air Quality, Visibility, Night Sky: The Mojave Desert Air Quality management District manages and enforces the Clean Air Act's air quality standards in Mojave National Preserve. Mojave National Preserve is a class II floor area, meaning that it may never be redesignated to class III. The Environmental Protection Agency has classified Mojave National Preserve as a non-attainment area for ozone and PM_{10} standards.

Visibility is probably the most important air quality resource in the desert region and is easily affected by dust-generating activities. Local pollution sources in the desert consist primarily of particulate matter from off-road vehicles, wind-blown soil, mining operations, livestock grazing, and other agricultural activities.

Mojave is a naturally quiet desert environment with very dark night skies. Visitors and researchers have opportunities for natural quiet, solitude, and star gazing with few human-caused noise or light glare sources.

Natural Ambient Sound: Mojave National Preserve is generally a quiet landscape with occasional, short-term interruptions of the natural quiet. Depending on the atmospheric conditions, closeness to a noise source, and topographic features, visitors generally experience very little human-caused noised while in the backcountry. Most areas in the Preserve are well away from traffic and its noise. In other areas, noise is locally concentrated (e.g., off-road vehicle use on adjacent lands, railroads, and mining operations).

Soils: The Preserve is home to a wide array of soils, including: soils with sandy textures, gravel and cobble cimas; soils with medium textures; soils with calcium carbonate accumulations; fine textured soils; soils with a developed horizon reflecting age or formation during a different moisture regime; shallow soils; and upland soils. Escarpments, ephemeral streams, sand dunes, and lava flows are also found in Mojave. Detailed soil surveys have not yet been conducted.

Water: Groundwater runs underneath most of the Preserve, varying greatly in depth and quality. Over 200 springs and seeps have been identified within Mojave. Many have been altered by livestock grazing improvements such as retention dams, pipelines, and troughs. Most are available for wildlife and burro use. Small springs and seeps offer isolated, limited water for plants, wildlife, and domestic or commercial use.

Water wells in the Preserve have been drilled for livestock needs, domestic use, and mining operations. The National Park Service maintains a number of wells for visitor and administrative purposes throughout Mojave National Preserve. Mojave's General Management Plan (April 2002) states, "Surface water and groundwater withdrawn for public use will be the minimum amount necessary to achieve Preserve purposes. All water withdrawn for domestic use will be returned to the watershed system once it has been treated to ensure that there will be no impairment of Preserve resources" (p. 34).

Geology: The geology of Mojave is very complex and diverse due to igneous and metamorphic activity and structural deformations associated with these activities. Erosional processes have altered the landscape resulting in outcrops and rocks ranging from Precambrian to recent ages.

Mojave National Preserve is characterized by isolated mountain ranges and ridges separated by alluvium-filled irregular large valleys. Dividing the Preserve approximately in half is the northeast trending Providence-Mid Hills-New York Mountain ranges. The principal valleys within the Preserve include Ivanpah Valley, Kelso/Cedar Wash, Lanfair Valley, Devils Playground, Piute Valley, and the northern area of Fenner Valley. Ivanpah Valley and Kelso/Cedar Wash line up in a northeasterly to southwesterly fashion but drain in opposite directions because of an inconspicuous northwest trending divide near the town of Cima. Both Lanfair and Piute Valleys drain via Piute Wash into the Colorado River. The remaining valleys have self-contained drainage systems as demonstrated by playa lakes such as Soda and Ivanpah.

BIOLOGICAL RESOURCES

The wildlife and vegetative resources of Mojave National Preserve reflect the mingling of three major North American deserts – the Great Basin, the Mojave, and the Sonoran deserts. Vegetation consists primarily of species common to the Mojave Desert but the Preserve also contains floral species of the Great Basin and Sonoran deserts and elements of the California coastal zone. Mojave National Preserve was established to preserve an ecologically diverse yet fragile desert ecosystem comprised of scenic, geologic, and wildlife values unique to all three of the abovementioned desert environs. This transition zone ranges from 900 to nearly 8,000 feet in elevation and embraces a plethora of landforms: cinder cones, sand dunes, dry lake beds, alluvial fans, mountain ranges, table-top mesas, large desert bajadas, and valleys. It provides a refugium for over 1,000 plant and animal species.

Vegetation: Mojave National Preserve consists primarily of vegetative attributes of the Mojave Desert intermingled with floral species of the Great Basin Desert,

Sonoran Desert, and California Chaparral Zone. Many plant species are distributed only within their boundaries while other areas contain species normally associated with the California coast. The New York Mountains shares species of manzanita, California lilac, oak, and silk tassel with coastal California. The Mid Hills have significant stands of Great Basin sagebrush and Utah juniper. The strongest association is with the Sonoran Desert whose northernmost range is often recognized to intermingle with the southern border of the Park. Sonoran plant species such as pancake prickly pear and smoke tree are found extending a dozen or more miles into the southeast portion of Mojave National Preserve.

Community types common both to Mojave and elsewhere in the desert include the playas, saltbush, creosote-covered flats and alluvial fans, and Joshua tree woodlands. The Preserve is unusual in the complexity and density of its Joshua tree community which is best represented on Cima dome. The quality and sheer vastness of the Joshua tree forest on Cima Dome is unparalleled anywhere else in the world. There are seven different types of wash plant species associations including catsclaw acacia, smoke trees, and desert willows. Higher elevations support grassland sagebrush, blackbrush, pinyon-juniper woodlands as well as unique remnant habitats containing small white fir forests and pinyon-juniper with oak. The Piute Creek desert oasis also supports a very fragile and limited riparian community. A total of 803 species of plants representing 85 plant species have been identified in Mojave National Preserve.

Wildlife: The intermingling of three desert environments has produced approximately 35 wildlife habitat types. These diverse habitats support approximately 300 species of wildlife. Documented in the literature are 36 species of reptiles, 206 species of birds, and 47 species of mammals. A few of the most notable species include the gila monster, desert tortoise, Mohave tui chub, Mojave fringe-toed lizard, regal ring-necked snake, and desert whipsnake. Significant avian fauna include the prairie falcon, Bendire’s thrasher, California thrasher, gray vireo, golden eagle, Lucy’s warbler, mourning dove and Gambel’s quail. Mojave has one of the more significant bat faunas of the California Desert. There are also rock squirrels in pinyon-juniper woodland, a relict population of dusky-footed woodrats, mule deer, porcupines, mountain lions, and desert bighorn sheep.

Many wildlife species in Mojave National Preserve are considered game and are hunted under the California Desert Protection Act and CDFG regulations. Hunting results in an imbalance to the ecosystem. Hunted herds are not a natural dynamic, and selective hunting practices can skew wildlife population numbers and sex ratios. CDFG collects and provides data on annual hunting levels.

Threatened, Endangered and Sensitive Species

The desert tortoise is listed as threatened under both the Endangered Species Act and the California Endangered Species Act. A large portion of the Preserve is designated critical habitat for the tortoise. Some of the highest densities of tortoise are found in the Ivanpah Valley in the northern end of the Preserve.

The southwestern willow flycatcher, least Bells vireo, and California yellow-billed cuckoo have limited potential to inhabit the Preserve. Both species are federally listed.

There are no known federally listed or proposed plant species in the Preserve. Thorne’s buckwheat is listed by the State of California as an endangered species. Two occurrences in the Preserve had been confirmed at the time the General Management Plan was written. A complete list of Species of Special

Consideration may be found in the revised draft Environmental Impact Statement and General Management Plan (July 2000, p. 428-431).

Introduced Species

Over 60 nonnative plant species have been identified in Mojave National Preserve. Some better known species include tamarisk, goat-head thorns, halogeton, cheat grass, and Russian thistle. Mojave also has well established populations of nonnative animals including burros, chukar, and Rocky Mountain mule deer.

Paleontology: The Preserve contains a fragile and irreplaceable paleontological record. The richness and diversity of that record is unknown as significant inventory work has not been performed on the various geologic formations that could contain fossil resources. Fossils have many values including (1) stratigraphic indicators for correlation of deposits containing them and for determination of relative geologic age; (2) records of past life forms showing the course of evolutionary trends of plants and animals, and (3) evidence of changing paleoenvironments.

CULTURAL RESOURCES

Prehistoric Resources, Historic Resources, and Cultural Landscapes

There is significant documentation of archeological information at Mojave. Since 1997, the National Park Service has been developing the servicewide archeological sites management inventory system (ASMIS). Various cultural resources studies have examined archeological resources in the Mojave Desert region. There is evidence of human occupation from the terminal Pleistocene (ca. 12,000 years ago) through the contact period.

The mountains and valleys of the Preserve contain sites associated with early Spanish and American exploration and the survey of the Mojave Desert. The area is laced not only with remnants of prehistoric and protohistoric Native American trails but also with Euro-American trails, wagon roads, railroads, highways, and other early transportation arteries. There are numerous abandoned mining operations, settlements, railroad grades and railway structures, and sites of military operations against the Native Americans. Fence lines, water tanks, and corrals testify to a continuing ranching-grazing industry. Scattered remains of homesteads tell of a time when dry land farming was attempted in the Mojave Desert, and the outlines of military camps are reminders of World War II when American troops trained for military campaigns abroad.

Cultural landscapes in Mojave reflect past and present mining, ranching, railroading, and ethnographic activities. The General Management Plan identifies Mojave’s most significant and potentially significant landscapes (including that related to historic ranching). The CDFG proposal does not clearly specify the locations of the 12 wells to be retrofitted and thus some confusion exists regarding their actual names. It can, however, be safely said that at least 10 of these locations are considered contributing elements to the Rock Springs Land and Cattle Company Historic District nomination. The main well at Government Holes was likely first developed sometime in the 1860s and was one of the rare water sources not controlled by the large Rock Springs interests. This well, in addition to the wells at Barnwell, were not shut down with the recent retirement of grazing leases within the Preserve. The cattle watering facilities at Barnwell, Vontrigger, and Lanfair all date to the dominant period of the Rock Springs Land and Cattle Company between 1894 and 1927. The Hollimon well probably dates to the early 1920s, while most of the others were developed by Claude Halsell in the early days of the OX Ranch

between 1930 and 1948. All of these locations represent cultural landscapes in their own right and they are also part of the larger cultural landscape related to the Rock Springs Land and Cattle Company and its antecedents.

There are also three historic landscapes in the Preserve not managed by the National Park Service: the Union Pacific's Los Angeles to Salt Lake City Railroad Line, the Boulder Transmission Line, and Mitchell Caverns.

USE OF THE PRESERVE

Recreational Activities

Mojave National Preserve provides recreational opportunities to people from all over the world. Most of the landscape is open with broad vistas of relatively undeveloped land. The vastness of the landscape offers visitors opportunities for seclusion and a sense of wilderness even when in a vehicle. The land has many extremes and contrasts that people come to experience.

Most visitation occurs between October and May when an estimated 72% of annual overnight visits occur. Some of the more popular recreational opportunities include rock climbing, hunting, hiking, equestrian use, bicycling; four-wheel drive touring, street-legal motorcycle touring, and backcountry use and roadside vehicle camping.

Wilderness

The California Desert Protection Act that established Mojave National Preserve in 1994 also designated approximately half of its 1.6 million acres as wilderness. Wilderness areas are given supplemental and permanent protection by the US Congress beyond that normally afforded backcountry resources. In particular, wilderness is managed to preserve wilderness characteristics as defined by the Wilderness Act of 1964. The National Park Service has established wilderness use management guidelines that emphasize the principle of non-degradation, Leave-No-Trace principles and practices, and prohibited use of motorized or mechanized equipment unless excepted by determination of a Minimum Requirements Analysis and when a proposed action is deemed essential, the definition of Minimum Tool. Certain actions under Alternative C would need to be carried out in wilderness to gain enough information to manage and protect designated wilderness and associated wilderness values in accordance with the Wilderness Act. Examples of these actions might include use of aircraft, cameras, water measurement instruments, and other mechanized or motorized equipment.

SECTION IV: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section presents the likely beneficial and adverse effects to the natural and human environment that would result from implementing the alternatives under consideration. This section describes short-term and long-term effects, direct and indirect effects, cumulative effects, and the potential for each alternative to impair park resources. Interpretation of impacts in terms of their duration, intensity (or magnitude), and context (local, regional, or national effects) are provided where possible.

METHODOLOGY

This section contains the environmental impacts, including direct and indirect effects and their significance to the alternatives. It also assumes that the mitigation identified in the *Mitigation and Monitoring* section of this EA would be implemented under the action alternative under discussion.

Impact analyses and conclusions are based on NPS staff knowledge of resources and the project area, review of existing literature, and information provided by experts in the NPS or other agencies. Any impacts described in this section are based on preliminary design of the alternatives under consideration. Effects are quantified where possible; in the absence of quantitative data, best professional judgment prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES

The following are laws, regulations, and/ or guidance that relate to the evaluation of each impact topic.

Wildlife, Vegetation, and Threatened & Endangered Species

Laws, Regulations, and Policies. The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the NPS to mean native animal life should be protected and perpetuated as part of the Preserve's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible. The restoration of native species is a high priority in national park units. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and ecological integrity of plants and animals.

Impact Indicators, Criteria, and Methodology. The impacts on wildlife were evaluated in terms of impacts to individual animals and wildlife habitat. Specific localized impacts were estimated based on knowledge garnered from similar past activities.

The following are standards used by the NPS in interpreting the level of impact on wildlife:

Negligible impacts: No species of concern is present; no impacts or impacts with only temporary effects are expected.

Minor impacts: Nonbreeding animals of concern are present, but only in low numbers. Habitat is not critical for survival; other habitat is available nearby. Occasional flight responses by wildlife are expected, but without interference with feeding, reproduction, or other activities necessary for survival.

Moderate impacts: Breeding animals of concern are present; animals are

present during particularly vulnerable life-stages, such as migration or winter; mortality or interference with activities necessary for survival expected on an occasional basis, but not expected to threaten the continued existence of the species in the park.

Major impacts: Breeding animals are present in relatively high numbers, and/or wildlife is present during particularly vulnerable life stages. Habitat targeted by actions has a history of use by wildlife during critical periods, but there is suitable habitat for use nearby. Few incidents of mortality could occur, but the continued survival of the species is not at risk.

Impairment: The impact would contribute substantially to the deterioration of natural resources to the extent that the park's wildlife and habitat would no longer function as a natural system. Wildlife and its habitat would be affected over the long-term to the point that the park's purpose (Enabling Legislation, *General Management Plan*, *Strategic Plan*) could not be fulfilled and resources could not be experienced and enjoyed by future generations.

In the absence of quantitative data concerning the full extent of actions under a proposed alternative, best professional judgment prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES OF ALL OTHER ISSUES

Impacts to soundscapes, visual resources, safety, visitor experience, and wilderness were analyzed using the best available information and best professional judgment of park staff.

Terms referring to impact intensity, context, and duration are used in the effects analysis. Unless otherwise stated, the standard definitions for these terms are as follows:

- *Negligible impacts*: The impact is at the lower level of detection; there would be no measurable change.
- *Minor impacts*: The impact is slight but detectable; there would be a small change.
- *Moderate impacts*: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.
- *Major impacts*: The impact is severe; there would be a highly noticeable, permanent measurable change.
- *Localized Impact*: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.
- *Short-Term Effect*: The effect occurs only during or immediately after implementation of the alternative.
- *Long-Term Effect*: The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more and could be beneficial or adverse.

IMPAIRMENT ANALYSIS

Impairment to park resources and values are analyzed in this section. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is crucial to the cultural or natural integrity of the park or that is a resource or value needed to fulfill a specific purpose identified in the enabling legislation. An impact would be less likely to constitute impairment if it is an unavoidable result that cannot be reasonably mitigated or an action necessary to preserve or restore the integrity of park resources or values.

A determination of impairment is made in the “Conclusion” section of all natural and cultural resource impact topics of this document. Impairment statements are not required for recreational values/visitor use and experience or safety-related topics.

CUMULATIVE EFFECTS

Cumulative effects are the direct and indirect effects of a proposed project alternative’s incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR Part 1508.7). Guidance for implementing NEPA (Public Law 91-190, 1970) requires that federal agencies identify the temporal and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. This includes potential actions within and outside the recreation area boundary. The geographical boundaries of analysis vary depending on the impact topic and potential effects. While this information may be inexact at this time, major sources of impacts have been assessed as accurately and completely as possible, using all available data.

Alternative A- No Action

Soils

With the No Action Alternative, soils would not be disturbed. The existing footprints of disturbance around existing developed water sources would be left unchanged.

Water Resources

There would be no impacts to developed or undeveloped water sources from the No Action alternative. Any well seal and abandonment work scheduled prior to this environmental assessment would be carried out. Such work would reduce impacts to the groundwater table and, in consequence, to the surface water sources that are fed by groundwater.

Surface water sources fed from the groundwater table would continue to be restored naturally as they have been since the retirement of several grazing allotments in the past five years. Other water available to wildlife includes over 150 undeveloped springs and seeps, one perennial water source, ranching waters in the remaining active grazing allotments, and incidental collections in abandoned ranching water catchment systems throughout the Preserve.

Wildlife

Wildlife populations would remain unchanged from their current status under the No Action alternative. They would continue to utilize all available water sources in the Preserve. The 12 wells proposed for conversion to guzzlers have been shut off for up to five years, beginning in 2000. Animals whose watering habitats have been diverted away from ranching water developments that are now shut down would continue to utilize other water sources. Actual wildlife use of water sources would continue to be inadequately documented under this alternative.

Vegetation

Vegetation would continue to flourish unimpacted under the No Action alternative. Plants whose growth had been lessened by ranching water diversions would continue to recover since the closure of those diversions.

Threatened, Endangered, & Sensitive Species

Under the No Action alternative, the habitat for desert tortoise, least Bell’s vireo, and southwestern willow flycatcher would remain unchanged. There would be neither adverse nor beneficial impacts to these species.

Prehistoric, Historic, and Cultural Landscape Resources

Prehistoric, historic, and cultural landscape resources will be left intact and not be impacted by implementation of the No Action alternative.

Visitor Experience

Implementation of the No Action alternative would not change the current visitor experience offered at Mojave National Preserve. It would not increase or decrease hunting levels. Wildlife viewing opportunities would remain unchanged. There is long-term potential for wildlife viewing to improve at undeveloped water sources but current available data cannot substantiate this potential.

Development and Public Health & Safety

Under No Action, the ranching water developments that were shut off when grazing allotments were retired will remain closed. Risks to public health and safety will be reduced if more wells are sealed and abandoned in accordance with State of California Water Code Section 13801.

Park Operations

Park operations would continue unchanged under No Action. Water sources, both developed and undeveloped, would continue to be monitored infrequently based on available park resources.

Wilderness

Wilderness would not be impacted by the No Action alternative. Because there would be no activities in wilderness requiring the use of motorized or mechanized equipment, there would be no need to develop a Minimum Requirements Analysis (Minimum Tool). The wilderness character in Mojave National Preserve would remain unchanged. CDFG and it volunteers current inspect and maintain existing guzzlers in Mojave without the use of mechanized or motorized equipment.

Impairment

The No Action alternative would result in either no impacts or negligible impacts to the natural and cultural resources of Mojave National Preserve. No significant impacts can be identified from the implementation of No Action. Cultural resources would continue to be protected. Turning off the ranching waters will allow the groundwater table to be replenished and natural surface waters to recover. Ranching waters have been turned off for up to the past five years. The sites of the 12 proposed guzzlers have been dry since 2000. The No Action alternative does not change the status quo. Therefore, this alternative will not result in impairment to the resources of the Preserve.

Alternative B- Proposed Action
Retrofit 12 Pre-existing Ranching Water Developments as Wildlife Guzzlers over Three Years

Soils

If the Proposed Action is implemented, soils would be disturbed at the 12 well sites. There would also be soil disturbance for potential trenching work to accommodate water lines. The extent of this disturbance cannot be fully assessed until better details of the proposed action are provided. This disturbance would, nonetheless, likely be temporary and terminate at the completion of construction.

Water Resources

If any of the 12 converted guzzlers are fed from the groundwater table, the Proposed Action will potentially lower groundwater levels. In turn, this will have a negative impact on undeveloped water sources that rely on the groundwater table for replenishment. If CDFG and volunteers replenish the proposed guzzlers by transporting water to each site and pumping it into the well, there is a possibility of polluting the ground water. The groundwater table is also vulnerable to pollution because of its exposure at the ground surface. The potential for adverse impacts may be high, but the extent of these impacts to ground and surface water is not known until CDFG provides more detail with respect to the Proposed Action.

Wildlife

The Proposed Action would artificially support wildlife populations in Mojave National Preserve. Twelve wells that were shut off when ranching operations ceased would be converted to guzzlers. The guzzlers would provide water to wildlife in areas where there would otherwise not be a water source. This alternative has the potential to develop or reinstitute a dependence on these 12 water sources, resulting in changes to the wildlife populations and an imbalance of the ecosystem. When used by cattle ranchers, the wells were turned on and off purposely to move cattle around within the grazing allotment. Use of these waters by wildlife was incidental and opportunistic; it was not determined by climate or seasonal conditions.

The Proposed Action, therefore, has the potential to develop a dependence on artificial waters that did not previously exist, depending on the availability of water at the 12 proposed sites. There is also great potential for wildlife numbers to increase. Hunting also results in an imbalance to the ecosystem. Hunted herds are not a natural dynamic, and their population numbers and sex ratios may be skewed by selective hunting practices. Impacts to wildlife game species from Alternative B are certain but their full extent is unknown.

All of the impacts identified here are conditional on the abilities of CDFG and its volunteers to regularly repair and maintain the 12 proposed developments. If maintenance and repair is discontinued, it is not known what impacts the proposed developments might have on wildlife.

Impacts to species diversity are unknown.

Vegetation

Vegetation at the 12 well sites would not experience any direct benefit from the guzzler conversions. There may be an indirect detrimental impact from increased

foraging and trampling if the conversions encourage a greater wildlife presence at these sites. If the 12 converted guzzlers are not regularly maintained and repaired, there will be less likelihood of increased wildlife causing adverse impacts to the vegetation, but the extent of these impacts to ground and surface water is not known until CDFG provides more detail with respect to the Proposed Action.

Threatened, Endangered, & Sensitive Species

Based on CDFG's proposal (see Alternative B: Proposed Action), the drinkers will be placed high enough off the ground to prevent desert tortoises from accessing them. Tortoises would not be able to crawl into the catchment systems and drown; neither would they be able to use the water in the drinkers. The 12 proposed sites are outside of desert tortoise critical habitat. It is, therefore, unlikely that the Proposed Action will directly adversely impact this Federally threatened species.

Other listed species in the Park would not be impacted by the Proposed Action. The Mohave tui chub is physically constrained to two man-made impoundments at the Desert Studies Center at Zzyzx that are not affected by the Proposed Action. The southwestern willow flycatcher, least Bells vireo, and California yellow-billed cuckoo have limited potential to inhabit the Preserve but have not been documented in Mojave. It is highly unlikely that these species would be impacted by the Proposed Action.

Prehistoric Resources

Mojave National Preserve is rich in prehistoric and protohistoric remnants of Native American and Euro-American existence in the California desert. Any surface disturbance activity will require pre-construction archeological survey and NHPA Section 106 clearance.

Historic and Cultural Landscape Resources

At least 10 of the wells proposed for retrofitting are considered contributing elements to the Rock Springs Land and Cattle Company Historic District nomination. All of these locations represent cultural landscapes in their own right and they are also part of the larger cultural landscape related to the Rock Springs Land and Cattle Company and its antecedents.

There is a high potential for adverse impacts to these cultural landscapes with the introduction of guzzler features not typically associated with ranching activities. Impacts to cultural landscapes and other cultural resources would have to be addressed through consultation with the California SHPO. More information from CDFG will be needed before consultation with the SHPO can be initiated.

Visitor Experience

Converting 12 abandoned wells into guzzlers has the potential to increase hunting activities if wildlife populations grow from an increased availability of water. Increased potential for wildlife viewing may be offset by the potential for increased visitor-to-visitor encounters and associated decrease in opportunities for solitude.

Development and Public Health & Safety

Alternative B would reactivate twelve wells that did not meet California Public Safety Code for potable water. This alternative would increase public health

and safety risks to visitors who might drink from these non-potable water sources. This risk is low and can be mitigated. Mitigative measures, such as appropriate signage, will be selected and implemented based on minimal intrusiveness to the ecosystem and to the backcountry to maximize the visitor experience of the openness, nature, and solitude of Mojave National Preserve.

Park Operations

California Department of Fish and Game has pledged funding and volunteer labor to implement the Proposed Action. This would include the initial construction effort to convert the twelve sites to guzzlers and follow-up and routine monitoring. NPS operations would be affected by increased workload of special use permits and occasional monitoring of the proposed guzzlers. This additional workload would be minor and would be absorbed into daily park operations.

Wilderness

The 12 well sites were chosen because of their location outside of wilderness and desert tortoise critical habitat. Therefore, the implementation of the Proposed Action would not have impacts on wilderness values.

Cumulative Impacts

The Proposed Action has associated cumulative impacts. The increased availability of water will attract all species of wildlife that can utilize these guzzlers, including small game, neotropical migratory birds, and predatory species – i.e., raptors and ravens. Although the twelve proposed guzzlers are located outside of desert tortoise critical habitat, the potential increase of ravens in the Preserve also presents an increased threat to the tortoise population. Most reptiles may not be able to reach the drinkers and would only benefit from spill-over water. They would, nonetheless, be subject to increased predation, similar to the tortoise impacts described above. Alternative B will create a portal to the groundwater source at the twelve proposed sites. The groundwater table will be more vulnerable to pollution – both natural (e.g., E. coli) and human-induced (e.g., dumping). It will also be lowered each time water is pumped to the surface. A third consideration is the potential for wildlife to habituate to the new guzzlers. If, for some reason, these sources are not maintained regularly or at all, the survival of these populations will be threatened.

These cumulative impacts have been identified based on a series of assumptions about the Proposed Action and its impacts. Until CDFG provides more information, it is not known for certain if any of these impacts would result from the conversion of 12 ranching wells to guzzlers.

Impairment

Ranching wells were operated in Mojave for over 100 years. Alternative B would return available above-ground water to those levels that existed before 2000, when such waters were used for cattle ranching. There is, nonetheless, a lack of information on both prior and proposed levels of use of the 12 wells. Therefore, impacts are not fully known. Impairment or the lack thereof cannot be concluded to result from the Proposed Action.

Alternative C – Science-Based Management
Monitor the Natural Springs and Wildlife Populations of Mojave National Preserve to Determine Existence and Extent of Need for Artificial Water

Soils

Alternative C, to base management decisions on scientific data of natural springs and wildlife in Mojave National Preserve, will involve surveying and monitoring undeveloped water sources, wildlife that may use these waters, and local habitats. Some of these studies may involve minor to negligible soil disturbance. No significant ground surface disturbance or soil sampling will be necessary make better informed management decisions at Mojave National Preserve. Alternative C will not cause significant impacts to soils or other geologic resources.

Water Resources

Alternative C will involve studies to better understand undeveloped water sources (e.g., springs and seeps). Surveying and sampling activities will be limited to surface waters that are normally available for wildlife use and will have minimal impacts.

Wildlife

Alternative C will include studies of wildlife that may use developed and undeveloped surface waters and the surrounding habitats. Wildlife research will likely involve activities such as monitoring by motion-sensor cameras, pellet transect data collection, and the like. Impacts to wildlife from scientific studies will be negligible or non-existent.

Vegetation

Scientific studies may be conducted to better understand undeveloped water sources, wildlife that may use these waters, and associated local habitats. Habitat studies may involve the establishment and monitoring of transects, sampling, and measurements, for example. Vegetation will remain largely intact; impacts to flora will be minor to negligible.

Threatened, Endangered & Sensitive Species

There are no known threatened, endangered, or sensitive species in or around desert bighorn habitat in Mojave National Preserve. Scientific studies as proposed in Alternative C will have little to no impacts on T&E species documented in the Park.

Prehistoric, Historic & Cultural Landscape Resources

Cultural resources, including historic and prehistoric resources, may be impacted to the extent that some scientific studies may take place near culturally significant features. Any studies requiring ground disturbance will require archeological clearance before field work can begin. As stated above, ground disturbance will be temporary and negligible; therefore, below-ground resources should not be impacted. It is Park policy to halt work immediately if any such resources are discovered. The Park archeologist must conduct a site visit and ensure no impacts to the cultural resources in question before work can continue. With these stipulations, adverse impacts to the cultural resources will be avoided or minimized to the extent possible. Scientific studies should not lead to significant impacts of Mojave’s prehistoric, historic, or cultural landscape resources.

Visitor Experience

Implementation of Alternative C will be focused at locations of undeveloped water sources, many of which are in remote areas. Because visitation to these areas tends to be low, the number of visitors impacted by the establishment of study plots or installation of monitoring equipment will be similarly low.

Development and Park Operations

Implementation of Alternative C will be focused at locations of undeveloped water sources, many of which are in remote areas. Development and park operations will not be impacted by these studies.

Wilderness

Implementation of Alternative C will be focused at locations of undeveloped water sources, many of which are in remote areas. Data will need to be collected for sites both inside and outside of designated wilderness to better understand the entirety of water availability and wildlife usage throughout the Preserve. For water sources located in wilderness, use of mechanized or motorized equipment will require a Minimum Tool determination for each study. Other potential studies may focus on wildlife population dynamics, game species utilization patterns, and other non-intrusive data collection. Studies will be selected that will best protect the resources of Mojave National Preserve including approximately 700,000 acres of designated wilderness. Minimizing impacts to wilderness must be incorporated into the permitting process. The Minimum Tool for each scientific research and collecting permit will include consideration from the public.

Cumulative Impacts

As with the impacts identified above, little is known about cumulative impacts resulting from Alternative C. Depending on the studies to be performed, it is possible for many of the cumulative impacts identified in Alternative B to also result from Alternative C over a much shorter period of time. There may, for example, be an increase in human-animal encounters during monitoring efforts. There might also be more structures (e.g., survey equipment) in the field. This would increase the number of potential roosting perches, for example, that could be used by raptors and ravens. Scientific research might temporarily impact visitor use – e.g., area closures, disruption of the view shed, etc. The National Park Service will minimize or avoid cumulative impacts through the scientific research and collection permitting process. Only studies that do not have significant adverse impacts will be considered, to avoid or minimize to the extent possible adverse impacts to the resources of the Preserve.

Impairment

All impacts identified above may be avoided or mitigated to a minimal level. Alternative C would have the same impacts as Alternative A at first. Over time, the impacts from Alternative C would decrease as available information increases and makes greater contributions to management decisions. The long-term result would be greater protection of the resources of Mojave National Preserve. Therefore, Alternative C will not result in any impairment to the natural and cultural resources of Mojave National Preserve.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

A final determination of the environmentally preferred alternative cannot be made unless more information regarding Alternatives B (Proposed Action) is provided. With the information currently available, it can be asserted that Alternatives A and C would have the least impacts, and that Alternative B has temporary and potential long-term adverse effects. To conclusively determine the Environmentally Preferred alternative, more needs to be known about the design and function of the proposed guzzlers, wildlife use history and patterns of artificial watering facilities and of undeveloped water sources in Mojave National Preserve, wildlife populations and population dynamics, and protections of groundwater quality and quantity.

The alternative that best meets the criteria for environmentally preferred is Alternative C. At first, Alternative C would produce the same level of impacts as Alternative A, No Action. These impacts have been determined to be minor, negligible, or mitigable. Over time, as long-term scientific studies are completed and more information becomes available, the natural and cultural resources of Mojave National Preserve will be better protected by science-based management decisions. In this regard, Alternative C would present an environmentally preferred outcome over Alternative A.

COMPARISON OF IMPACTS

Table 1 summarizes the potential long-term impacts of the all four alternatives. Short-term impacts are not included in this table, but are analyzed in the Environmental Consequences section. Impact intensity, context, and duration are also defined in the Environmental Consequences section.

Table 1. Potential Long-Term Impacts

IMPACT TOPICS	ALTERNATIVE A, No Action	ALTERNATIVE B, Proposed Action (Retrofit 12 Ranching Water Developments to Wildlife Guzzlers)	ALTERNATIVE C (Science-Based Management)
Soils	None	Temporary disturbance during construction.	None
Water Resources	Beneficial impacts include returning Mojave National Preserve waters to a natural state and restoring springs and the groundwater table. Potential for adverse impacts include a short-term negative effect on game species. There is no evidence of long-term population declines resulting from the No Action Alternative.	Potential to lower groundwater table and have a negative effect on undeveloped groundwater-fed sources. Potential for adverse impacts may be high. Full extent of impacts remains unknown until CDFG provides more details about the Proposed Action.	None
Wildlife	None	Potential dependence on 12 new guzzlers by wildlife populations. Potential for increase in wildlife population numbers. Impacts are certain but the full extent of impacts remains unknown until CDFG provides more details about the Proposed Action.	None
Vegetation	None	Potential negative impacts from increased foraging and trampling as wildlife populations and guzzler use increases.	None

IMPACT TOPICS	ALTERNATIVE A, No Action	ALTERNATIVE B, Proposed Action (Retrofit 12 Ranching Water Developments to Wildlife Guzzlers)	ALTERNATIVE C (Science-Based Management)
Threatened, Endangered, & Sensitive Species	None	Adverse impacts to desert tortoise or other listed species are unlikely.	None
Prehistoric, Historic, Cultural Landscape Resources	None. Historic Register nominations would go forward as planned. Contributing cultural features would continue to be protected under current management policies. No adverse impacts anticipated.	High potential for adverse impacts to contributing elements of the Rock Springs Land and Cattle Company Historic District nomination. Impacts to cultural landscapes and other cultural resources will require consultation with the California State Historic Preservation Office.	None
Visitor Experience	None	Potential increased hunting activities. Potential increase in wildlife viewing opportunities. Potential increase in visitor encounters and decrease in opportunities for solitude.	None
Development and Public Health & Safety	Potential benefit to public health & safety if wells are sealed and abandoned.	Minor potential for increased risk to public health & human safety that can be mitigated.	None
Park Operations	None	Minor impacts to park operations.	None
Wilderness	None	None	None

SECTION V: COORDINATION AND CONSULTATION

The National Park Service hosted a public scoping meeting on June 27, 2005 in Barstow, California. Comments regarding the development of a NEPA document were accepted until September 1, 2005. Over 2000 comments were received in total of which approximately 200 form letters supported the CDFG proposal and approximately 1700 form letters opposed it. The balance of the comments were written and sent individually. All comments received are preserved in the administrative record.

The alternatives presented in this environmental assessment were developed from comments received from the public. The comments were generally divided between those supporting the Wells-to-Guzzlers proposal and those against it. Alternative D was developed from comments proposing to convert all ranching developments into wildlife water sources. Alternative E was similarly developed from comments opposing artificial watering sources for wildlife. Alternative C resulted from comments by both sides urging science-based decisions.

The EA will be released to the public for a 60-day comment period. In addition, the National Park Service will consult with Native American tribes regarding all proposed activities.

Public notice of the availability of this environmental assessment was published in local newspapers, and on the Mojave National Preserve Internet website (http://www.nps.gov/moja). Individuals and organizations can request the environmental assessment in writing, by phone, or by e-mail. The environmental assessment was circulated to various federal and state agencies, individuals, businesses, and organizations on the park's mailing list for a 60-day public review period. Copies of the environmental assessment were made available at area libraries. Agencies and organizations receiving copies include:

Bureau of Land Management, California Desert District, Moreno Valley
Bureau of Land Management, Barstow Resource Area
Bureau of Land Management, Needles Resource Area
California Department of Fish and Game, Eastern Sierra and Inland Deserts Region (Region 6), Bishop Field Office
California State Parks and Recreation, Providence Mountains State Recreation Area
California State University, Fullerton, Desert Studies Center, Soda Lake
Southern California Edison
University of California, Sweeney Granite Mountains Research Center
US Fish & Wildlife Service, Ventura Field Office

A copy of the environmental assessment can be obtained by direct request to:

Mojave National Preserve
Attention: Wells-to-Guzzlers EA
2701 Barstow Road
Barstow, CA 92311
(760) 252-6101

SECTION VI: LIST OF PREPARERS

Mojave National Preserve

Danette Woo, Environmental Compliance Specialist
Debra Hughson, Science Advisor
Larry Whalon, Chief of Resource Management
Robert Bryson, Archeologist

SECTION VI: LIST OF REFERENCES

California Department of Fish and Game. ***California T&E Species and Species of Special Concern.***

California Department of Water Resources. 1991. ***California Well Standards (Supplement to Bulletin 74-81)***. Bulletin 74-90.

California Department of Water Resources. 1981. ***California Water Well Standards***. Bulletin 74-81.

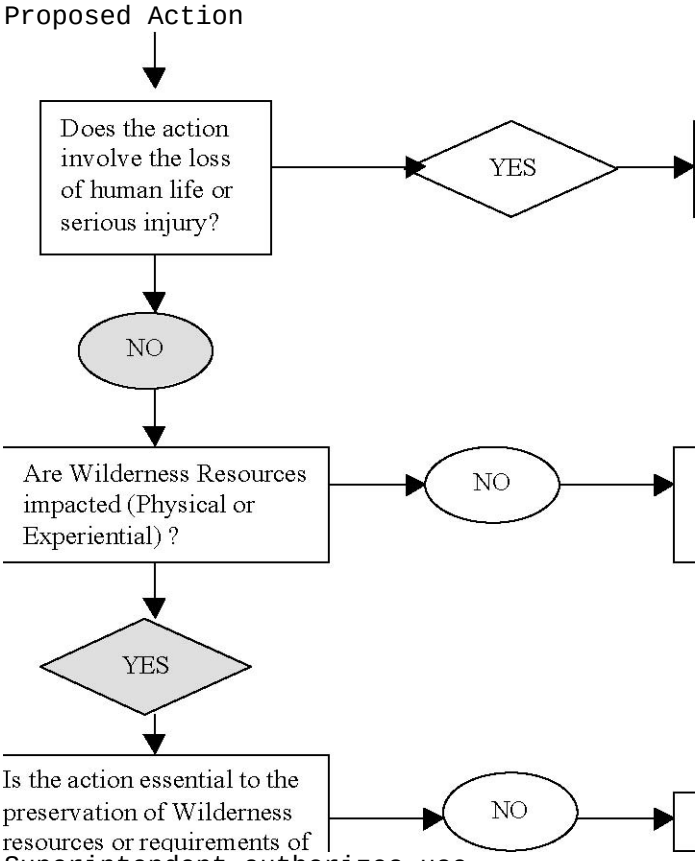
National Park Service. 2002. ***General Management Plan and Final Environmental Impact Statement***. USDI National Park Service.

National Park Service. 1999. Directors Order/Reference Manual #18: Wildland Fire Management Policy. USDI National Park Service.

National Park Service. 1999. Directors Order/Reference Manual #41: Wilderness Management Policy. USDI National Park Service.

National Archives and Records Administration. 1994 California Desert Protection Act (Public Law 103-433). Accessed online at: http://www.gpoaccess.gov/plaws/index.html.

APPENDIX A: Minimum Tool Requirement Analysis, Part 1



Proceed with project through park review process

Defer until compliance is completed.

MINIMUM TOOL REQUIREMENT ANALYSIS
PART 2

Is the Action essential to meet planned Wilderness Objectives?

NO

Do not proceed

YES

Can the action be accomplished outside wilderness?

YES

Conduct outside wilderness

NO

Determine alternative that has the least impact on Wilderness character and resources
List alternative ways to accomplish the action

Can the action be accomplished through visitor education?

Can the action be accomplished according to Light Hand on the Land principles (primitive tool, group size, etc)

NO

YES

NO

YES

Then use:
Interpretation Authority of Resource Leave No Trace Wilderness Ethics

Select appropriate mechanized tool. Non-routine uses only or administrative

Select appropriate minimum tool and skills

research.

Minimum Requirement Analysis
Decision Screening Questions

1 Does your action insure that wilderness is not occupied and modified? Yes. No modification or occupation would occur.
2 Does your action maintain or move the Wilderness toward less human influence within legal constraints? No. Bighorn sheep management activities are within the legal framework of the Clark County Conservation Act of 2002, which established the Wilderness in Lake Mead NRA.
3 Does your rationale allow Wilderness to retain solitude and elements of surprise and discovery? Yes, as much as possible activities would be restricted to periods of low use.
4 Did you evaluate the traps of making decisions based on economy, convenience, comfort, or commercial value? Yes. Options are limited for bighorn sheep management activities based on location of sheep populations, feasibility of trapping options, and importance of the bighorn sheep herd to the ecosystem of southern Nevada.
5 Did you look beyond the short-term outputs to ensure that future generations will be able to use and enjoy the benefits of an enduring resource of Wilderness? Yes. Managing bighorn sheep to allow future generations to experience these creatures as part of the enduring Wilderness resource is considered important for long-term preservation goals.
6 Does the alternative support the Wilderness resource in its entirety rather than maximizing an individual resource? Effective bighorn sheep management supports the Wilderness resource in whole.
7 Do you recognize the unique characteristics for this particular Wilderness? Yes, four Wilderness units are affected.
8 Does the action prevent the effects of human activities from dominating natural conditions and processes? Yes – human activities are restricted and on a temporary basis only.

APPENDIX B: National Park Service Press Release

National Park Service
U.S. Department of the Interior

Mojave National Preserve

2701 Barstow Road
Barstow, California 92311

(760) 252-6102 phone
(760) 252-6174 fax

Mojave National Preserve News Release

June 6, 2005 Release Number: 05-006
For Immediate Release
Contact: Danette Woo (760) 252-6107

Mojave National Preserve to hold public scoping meetings

The Mojave National Preserve has begun the development of the Park's Environmental Assessment to Convert Wells to Guzzlers (EA). The Preserve has scheduled one public open house session for the public to review planning issues and offer input needed for the completion of these plans. Superintendent Mary G. Martin said, "The Park is very interested in receiving public input." See below for more information.

Monday, June 27 from 5 pm - 8 pm

Holiday Inn Express Hotel & Suites

2700 Lenwood Road

Barstow, CA

(760) 253-9200

The projected date for completion of a draft EA is September 1, 2005. The public review and comment period will commence upon release of this document. If members of the public have any questions on the scoping and planning process, they may contact Ms. Danette Woo at

(760) 252-6107.

-NPS-